

Percutaneous Repair in A Patient with Iatrogenic Subclavian Artery Pseudoaneurysm

İyatrojenik Subklavyen Arter Psödoanevrizmasında Perkütanöz Tamir

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Central vein catheterization is a common procedure but it has potential fatal complications such as pneumothorax, hemothorax or arterial injury. We present a 74 year old female who was suffered a subclavian artery pseudoaneurysm because of accidental arterial puncture during the subclavian venous catheterizations. The patient was treated by stent graft by percutaneously due to high surgical risk.

Key Words: *Subclavian Artery Pseudoaneurysm, Percutaneous Intervention*

Santral ven kateterizasyonu sıklıkla kullanılan fakat pnömotoraks, hemotoraks veya arteriyel hasar gibi ciddi komplikasyonları olabilecek bir işlemdir. Bu yazıda, subklavyen venöz kateterizasyon sırasında gelişen subklavyen arter psödoanevrizması olan 74 yaşında kadın hastayı takdim ettik. Hastaya yüksek cerrahi risk nedeniyle perkütan yol ile greft stent ile tedavi edildi.

Anahtar Sözcükler: *Subklavyen Arter Psödoanevrizması, Perkütan Girişim*

A 74-year-old female was admitted to emergency service with dyspnea, orthopnea and fatigue of nearly two weeks history. She had a history of atrial fibrillation and dilated cardiomyopathy. Her medications included ramipril, metoprolol and warfarin. Physical examination revealed right jugular venous distention, 3+ pitting pretibial edema, 4/6 pansystolic murmur at apex and inspiratory crackles at the base and middle zone of the lung. Electrocardiography showed atrial fibrillation with rapid ventricular rate. Transthoracic echocardiography revealed dilated left ventricle and EF was 15%. After diagnosis of acute heart failure, the patient was referred coronary intensive care unit for intravenous diuretic and inotrop therapy. Right subclavian venous catheterizations were attempted to measure central venous pressure. However, accidental arterial puncture during the procedure was noted. After intravenous inotrop therapy was stopped, subclavian vein introducer sheath was removed. Two days later, the patients developed a continuous right upper chest pain with radiation to the right forearm. Repeated physical

examination revealed a pulsatile mass measuring nearly 3x3 cm in the right supraclavicular region with to and fro murmur and absent right radial artery pulsation (Figure 1). Color Doppler ultrasound revealed a 35x24 mm sized pseudoaneurysm communicating between the right subclavian artery (SCA). After multidisciplinary consultation, the patient was transferred to the coronary angiography unite for endovascular treatment.



Figure 1: Physical examination revealed a pulsatile mass measuring nearly 3x3 cm in the right supraclavicular region

Under local anesthesia, the right common femoral artery as accessed percutaneously and an 8-Fr introducer was placed. With a 0.038-inch 150-cm guide wire the

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tip of a 6-F Right Judkins catheter was positioned at the origin of the right SCA. Selective angiography of the right SCA confirmed the pseudoaneurysm with a narrow neck between the anterior wall of the right SCA (Figure 2). A 5 mm x 25 mm balloon-expandable Viabahn graft-stent (W. L. Gore and Associates, Flagstaff, Arizona) was implanted to the right SCA to exclude the pseudoaneurysm from the arterial lumen. The final right SCA angiogram demonstrated successful total occlusion of the pseudoaneurysm and patency of vertebral, internal mammary artery and distal SCA (Figure 3). After the procedure, right forearm pain was improved and right radial pulsation was recovered. Two days later, the patient was discharged with aspirin, clopidogrel, warfarin and standard medications for heart failure.

Central vein catheterization is a common procedure performed for measurement of central venous pressure or ultra filtration therapy for acute decompensated heart failure (1). Commonly blind technique guided by surface landmarks was used by cardiology specialists (2). This technique can lead to multiple punctures that may result in potential complications such as pneumothorax, hemothorax and arterial injury (2). Especially, in a non-compressible artery such as SCA, arterial puncture may cause formation of a pseudoaneurysm, arteriovenous fistula, and uncontrolled hemorrhage into soft tissues and adjacent pleural space (3). Small pseudoaneurysms of SCA may be asymptomatic while pulsatile mass, hematoma, neurological and airway compression, mediastinal syndrome, upper limb ischemia, and heart

failure may ensue from large pseudoaneurysms (3). Such complications may warrant urgent treatment.

Percutaneous treatments (stent graft, embolization, balloon temporary occlusion, thrombin injection, and closure device) have become attractive alternatives to conventional surgery for the treatment of pseudoaneurysms (2). In our case, surgical repair was considered to be high risk because of patient clinical condition and large size of the pseudoaneurysm. Therefore, percutaneous treatment with covered stent was considered the first line treatment.

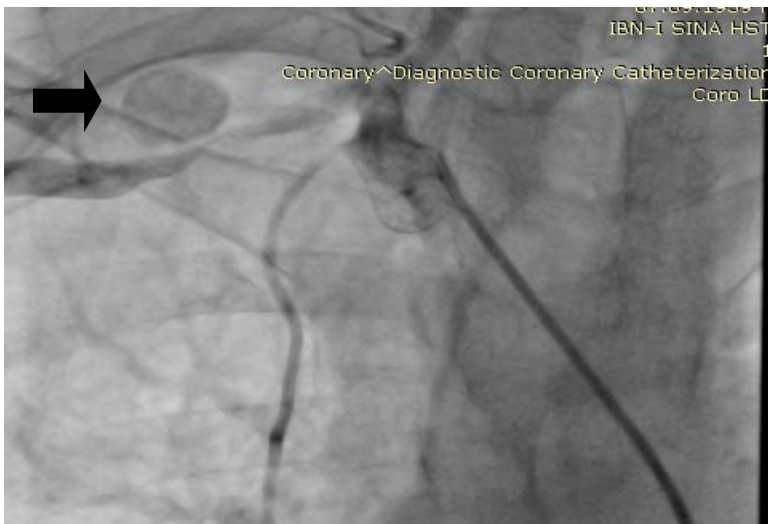


Figure 2: Selective angiography of the right SCA confirmed the pseudoaneurysm with a narrow neck between the anterior wall of the right SCA

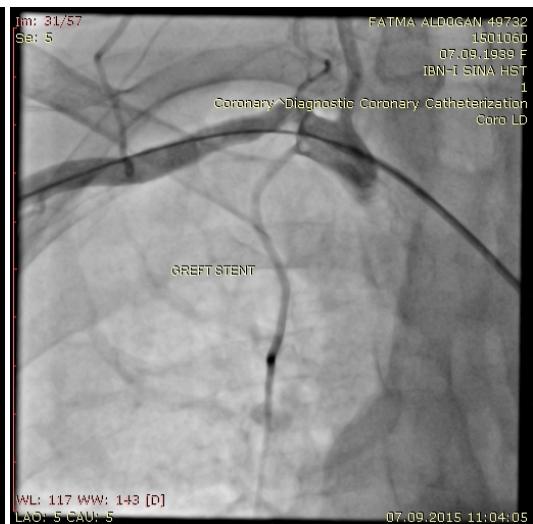


Figure 3: The final right SCA angiogram demonstrated successful total occlusion of the pseudoaneurysm and patency of vertebral, internal mammary artery and distal SCA

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